

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In Re The Application Of | : | |
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| Richard F. Creeth | : | Examiner: Corrielus, Jean M. |
| | : | |
| Serial No.: 09/785,573 | : | Group Art Unit: 2162 |
| | : | |
| Filed: February 16, 2001 | : | Confirmation No. 4253 |
| | : | |
| For: Fully Capable Minimally | : | |
| Inflatable Object Model System | : | |
| For Multidimensional Applications: | : | |

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Substitute Appeal Brief Under 37 CFR §41.37

Dear Sir:

A Notice of Appeal from the final rejection of Claims 11-43, all pending claims of U.S. Patent Application No. 09/785,573, having been previously filed on October 6, 2006, Appellant files its Appeal Brief. A Claims Appendix is submitted herewith, as are Appendices related to evidence previously submitted and decisions related to the case.

(i) Real Party In Interest

The real party in interest is the inventor, Richard F. Creeth.

(ii) Related Appeals and Interferences

There are no related Appeals or Interferences.

(iii) Status Of Claims

Claims 1-10 have been cancelled. Claims 11-43 stand rejected and are the subject of the instant Appeal. A copy of each of these claims is attached hereto in the Claims Appendix.

(iv) Status Of Amendments

No amendments have been filed since the Final Office Action dated April 4, 2006. On May 24, 2006, Appellant filed a Response to the Final Office Action dated April 4, 2006, but this Response contained only a Request for Reconsideration.

(v) Summary Of Claimed Subject Matter

Claims 11, 24 and 27 are the independent claims.

In general, the present invention, as claimed, is directed to an object model system that employs a unique concept, referred to as adaptive instantiation and inflation. Adaptive inflation and instantiation deals with two major issues facing object-oriented application developers: (1) should all the collections of objects in an object model be fully instantiated (constructed in memory) when the object model is first accessed, or should instantiation occur only when requesting an object of a collection; and (2) should a requested object be inflated (populated with its attribute information) when the user requests the object, or should inflation occur only when requesting an object property or method. Both of these questions are generally answered in different ways for different applications. Instantiation and inflation up-front, though providing much faster long-term response in an application, can come at a great cost in performance overhead in applications with large volumes of data and many users. In contrast, instantiation and inflation on-demand, often referred to as just-in-time instantiation, could be slowed down by the fact that a request of each object requires that the object be instantiated and inflated on demand. *See, e.g.,* page 10, lines 7 – 21.

In terms of the multidimensional object model presented in the application, instantiating the full set of an OLAP database's Cube, Dimension, CubeView, Subset and other objects would come at a great cost of processor and memory overhead. In a

web application, this scenario would quickly exhaust a web server's or other middle-tier server's resources. *See, e.g.*, page 11, lines 1 – 5.

The reason it is inefficient in a web environment to instantiate and inflate many objects relates to object state: objects instantiated in a web environment live only as long as it takes to return a page to a user. Constantly re-instantiating and re-inflating many objects every time a user requests a web page at the very least slows down page retrieval. Worse, when object instantiation and inflation is happening on the web server, those objects also consume the same server resources needed to efficiently process web page requests. *See, e.g.*, page 11, lines 6 – 12.

Conversely, there may be times when a user of the application is continually addressing a particular object or set of objects, for example, when one desires to automatically instantiate and inflate portions of those objects in anticipation of requests. *See, e.g.*, page 11, lines 13 – 16.

Rather than choose a single instantiation and inflation architecture, the object model system of the present invention is capable of adapting to the needs of the ASP web application developer. By default, object model software will instantiate and inflate

objects on demand. However, it is possible to instantiate and even inflate certain objects before they are requested. Developers can identify individual object properties, entire objects and even collections as needing to be instantiated and inflated when the object model is first accessed. See, e.g., page 11, line 17 – page 12, line 5.

A more detailed explanation of the inventive system is now presented by setting forth a concise explanation of the subject matter defined in each of independent Claims 11, 24 and 27.

Independent Claim 11

Claim 11 is directed to a system 10 for displaying data from a multidimensional database to a user, the system including a system computer 12, a multidimensional database 14 accessible by the computer 12, the multidimensional database 14 having objects stored thereon, and object model software 18 executing on the system computer 12. See, e.g., page 7, lines 4-18; Fig. 1. The object model software 18 instantiates and inflates a predefined group of specified objects up-front a first time the database is accessed (steps 59 and 60), and instantiates and inflates nonspecified objects which are not included in the predefined group of specified objects on demand as each of the nonspecified objects is accessed (steps 62 and 64). See, e.g., page 12, line 6 - page 15, line 3; Figs. 5 and 6.

Independent Claim 24

Claim 24 is directed to a system 10 for displaying data from a multidimensional OLAP database to a user, the system including a system computer 12, a multidimensional database 14 accessible by the computer 12, the multidimensional database 14 having objects stored thereon, and object model software 18 executing on the system computer 12. *See, e.g.*, page 7, lines 4-18; Fig. 1. The object model software 18 instantiates and inflates a predefined group of specified objects up-front a first time the database is accessed (steps 59 and 60), and instantiates and inflates nonspecified objects which are not included in the predefined group of specified objects on demand as each of the nonspecified objects is accessed (steps 62 and 64). *See, e.g.*, page 12, line 6 - page 15, line 3; Figs. 5 and 6. The system 10 also includes software executing on the computer 12 for receiving from the user an indication of specified objects 66 and state information 68. *See, e.g.*, page 15, line 4 - page 16, line 18; Fig. 1.

Independent Claim 27

Claim 27 is directed to a system 10 for displaying data from a multidimensional database to a user, the system including a system computer 12, a multidimensional database 14 accessible by the computer 12, the multidimensional database 14 having

objects stored thereon, and object model software 18 executing on the system computer 12. *See, e.g.*, page 7, lines 4-18; Fig. 1. The object model software 18 instantiates and inflates a predefined group of specified objects up-front a first time the database is accessed (steps 59 and 60), and instantiates and inflates nonspecified objects which are not included in the predefined group of specified objects on demand as each of the nonspecified objects is accessed (steps 62 and 64). *See, e.g.*, page 12, line 6 - page 15, line 3; Figs. 5 and 6. The system 10 also includes a dataspace 32 having a dataserver 34, with at least one cube object 36 being stored on the dataserver 34, each cube object 36 comprising at least one saved view of data 40, and with a dimension object 38 being stored the dataserver 34, the dimension object 38 comprising at least one saved subset of elements 46. *See, e.g.*, page 8, line 6 - page 9 line 9 Figs. 2 and 3.

(vi) Grounds Of Rejection To Be Reviewed On Appeal

Claims 11-43, all claims currently pending, stand rejected under 35 U.S.C. §102(e) as being anticipated by Greenfield et al. (U.S. Patent No. 7,010,523).

(vii) Argument

Cited Portions of Greenfield et al. Are Not Properly Considered Prior Art

Appellant respectfully submits that cited portions of Greenfield et al. are not

properly considered prior art to the present application under 35 U.S.C. §102(e). As is explicitly recognized by MPEP 706.02(f)(1)(I)(B):

The 35 U.S.C. 102(e) date of a reference that did not result from, nor claimed the benefit of, an international application is its earliest effective U.S. filing date, taking into consideration any proper benefit claims to prior U.S. applications under 35 U.S.C. 119(e) or 120 if the prior application(s) properly supports the subject matter used to make the rejection in compliance with 35 U.S.C. 112, first paragraph.

(emphasis added).

In the present case, the Examiner cites column 5, lines 49-55 of Greenfield et al. as part of the rejection of all claims, which section of Greenfield relates to the instantiation and population of certain multidimensional objects. Appellant acknowledges that the subject matter of this portion of Greenfield can be traced back to, and is fully supported by, Greenfield et al.'s parent application, U.S. Patent No. 6,684,207, in compliance with 35 U.S.C. 112, first paragraph (see column 5, lines 43-49 thereof). However, Appellant has reviewed the entirety of the provisional patent application of which U.S. Patent No. 6,684,207 claims the benefit, U.S. Provisional Patent Application No. 60/222,088, and cannot find any support whatsoever for the subject matter disclosed in column 5, lines 49-55 of Greenfield et al., never mind sufficient support to satisfy 35 U.S.C. 112, first paragraph. More specifically, Appellant can not find any disclosure whatsoever in U.S. Provisional Patent Application No. 60/222,088 of when instantiation and/or inflation is to occur.

In view of the above, Appellant respectfully submits that the earliest effective U.S. filing date of the subject matter disclosed in column 5, lines 49-55 of Greenfield et al. is the filing date of the parent application, U.S. Patent No. 6,684,207, which is August 1, 2001. Since the present application was filed before that date (i.e., on February 16, 2001), Appellant respectfully submits that the subject matter disclosed in column 5, lines 49-55 of Greenfield et al. (as well as any other disclosure in Greenfield et al. concerning when instantiation and/or inflation is to occur) is not properly cited as prior art under 35 U.S.C. §102(e).

Greenfield et al. Does Not Anticipate or Render Obvious the Claimed Invention

Moreover, Appellant respectfully submits that, even if the cited portions of Greenfield et al. were properly considered prior art, Greenfield et al. still does not anticipate or render obvious the present invention, as claimed.

The present invention, as claimed, is directed to an adaptive instantiation and inflation technique which is advantageously different than all instantiation and inflation techniques of which Appellant is aware. More specifically, as illustrated in Figure 5, object model software 18 receives an indication at 58 that the object model 28 is being first accessed. At this point, object model software 18 instantiates and inflates objects

which have been previously specified for up-front instantiation and inflation at 60. At 62, object model software 18 receives indications that objects are being accessed. Next, at 64, object model software 18 instantiates and inflates on demand any objects which were not already instantiated and inflated up-front. (see page 12, line 6 - page 15, line 3; Fig. 5).

Claims 11-43 of the present application all require, among other elements, object model software: (i) which instantiates and inflates a predefined group of specified objects up-front a first time the database is accessed, and (ii) which instantiates and inflates nonspecified objects which are not included in the predefined group of specified objects on demand as each of the nonspecified objects is accessed. Thus, Claims 11, 24 and 27 of the present invention require a two-stage, adaptive instantiation and inflation.

Greenfield et al., on the other hand, discloses only a single stage instantiation and inflation technique, which is the very prior art technique upon which the present invention is intended to improve. More specifically, the very portion of Greenfield et al. cited by the Examiner (i.e., column 5, lines 49-55) discloses that:

Accordingly, metadata is used to inform the OLAP application 101 about the data that is available within the relational database 121 in a manner so that the OLAP application 101 can define multidimensional objects for analysis. When the OLAP application 101 runs, the OLAP application 101 instantiates these

multidimensional objects and populates them with data fetched from the database.

(emphasis added).

Thus, Greenfield et al. teaches single stage instantiation and population that takes place when the OLAP application runs. There is no disclosure, teaching or suggestion of a selective instantiation and inflation of only certain specified objects when the OLAP application runs (i.e., step 1), and then an on-demand instantiation and inflation of nonspecified objects as they are accessed (i.e., step 2). Rather, Greenfield et al. discloses only a single step instantiation and population of all objects when the OLAP application runs. Appellant respectfully submits that this is completely different than what is claimed.

In summary, Appellant respectfully submits that cited portions of Greenfield et al. are not properly considered prior art against the present application under 35 U.S.C. §102(e). Moreover, Appellant respectfully submits that, even if the cited portions of Greenfield et al. were properly considered prior art, the claimed two-stage, adaptive instantiation and inflation technique of the present invention is not disclosed, taught or suggested in any way by Greenfield et al., nor is there any motivation provided in Greenfield et al. to modify the system disclosed therein to provide such a two-stage, adaptive instantiation and inflation technique.

Conclusion

For the foregoing reasons, Appellant respectfully submits that the claimed invention embodied in each of claims 11-43 is patentable over the cited prior art. As such, Appellant respectfully requests that the rejections of each of claims 11-43 be reversed and the Examiner be directed to issue a Notice of Allowance allowing each of claims 11-43.

Respectfully submitted,

March 5, 2007



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**Claims Appendix
to Appeal Brief Under 37 CFR §41.37
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11. A system for displaying data from a multidimensional database to a user, said system comprising:

a system computer;

a multidimensional database accessible by said computer, said multidimensional database having objects stored thereon; and

object model software executing on said system computer for instantiating and inflating a predefined group of specified objects up-front a first time said database is accessed, and for instantiating and inflating nonspecified objects which are not included in the predefined group of specified objects on demand as each of the nonspecified objects is accessed.

12. The system of Claim 11 further comprising software executing on said computer for receiving from the user an indication of specified objects.

13. The system of Claim 11 further comprising software executing on said computer for receiving from the user state information.

14. The system of Claim 11 wherein the specified objects comprise collections of objects.

15. The system of Claim 11 wherein the specified objects comprise specific properties of objects.

16. The system of Claim 11 wherein said multidimensional database comprises a database having multidimensional financial data stored thereon.

17. The system of Claim 11 wherein said multidimensional database comprises an OLAP database.

18. The system of Claim 11 wherein said object model software employs an object model comprising:

a dataspace comprising at least one dataserwer;

at least one cube object stored on each of said at least one dataserwer, each of said at least one cube object comprising at least one saved view of data; and

at least one dimension object stored on each of said at least one dataserwer, each of said at least one dimension object comprising at least one saved subset of elements.

19. The system of Claim 18 wherein the specified objects are identified via said dataspace.

20. The system of Claim 19 further comprising software executing on said computer for receiving from the user an indication of specified objects.

21. (original) The system of Claim 20 wherein the indication of specified objects comprises a structured string variable.

22. The system of Claim 21 wherein the structured string variable comprises raw text separated by delimiters.

23. The system of Claim 21 wherein the structured string variable comprises strings in an extensible markup language (XML) format.

24. A system for displaying data from a multidimensional OLAP database to a user, said system comprising:

a system computer;

a multidimensional database accessible by said computer, said multidimensional database having objects stored thereon;

object model software executing on said system computer for instantiating and inflating a predefined group of specified objects up-front a first time said database is accessed, and for instantiating and inflating nonspecified objects which are not included in the predefined group of specified objects on demand as each of the nonspecified objects is accessed; and

software executing on said computer for receiving from the user an indication of specified objects and state information.

25. The system of Claim 24 wherein the specified objects comprise collections of objects.

26. The system of Claim 24 wherein the specified objects comprise specific properties of objects.

27. A system for displaying data from a multidimensional database to a user, said system comprising:

a system computer;

a multidimensional database accessible by said computer, said multidimensional database having objects stored thereon; and

object model software executing on said system computer for instantiating and inflating a predefined group of specified objects up-front a first time said database is accessed, and for instantiating and inflating nonspecified objects which are not included in the predefined group of specified objects on demand as each of the nonspecified objects is accessed, said object model software employs an object model comprising:

a dataspace comprising at least one dataserwer;

at least one cube object stored on each of said at least one dataserer, each of said at least one cube object comprising at least one saved view of data; and

at least one dimension object stored on each of said at least one dataserer, each of said at least one dimension object comprising at least one saved subset of elements.

28. The system of Claim 27 wherein said multidimensional database comprises a database having multidimensional financial data stored thereon.

29. The system of Claim 27 wherein said multidimensional database comprises an OLAP database.

30. The system of Claim 27 wherein said at least one dataserer comprises a plurality of dataservers.

31. The system of Claim 27 wherein each of said at least one dimension object further comprises at least one saved element.

32. The system of Claim 27 wherein each of said at least one dimension object further comprises at least one saved hierarchy.

33. The system of Claim 27 wherein the at least one saved view of data comprises at least one saved value of data.
34. The system of Claim 27 wherein the at least one saved view of data comprises at least one saved subset of data.
35. The system of Claim 27 wherein said dataspace comprises an entry point into said object model.
36. The system of Claim 27 further comprising software executing on said computer for receiving from the user state information.
37. The system of Claim 27 wherein the specified objects comprise collections of objects.
38. The system of Claim 27 wherein the specified objects comprise specific properties of objects.
39. The system of Claim 27 wherein the specified objects are identified via said dataspace.

40. The system of Claim 39 further comprising software executing on said computer for receiving from the user an indication of specified objects.

41. The system of Claim 40 wherein the indication of specified objects comprises a structured string variable.

42. The system of Claim 41 wherein the structured string variable comprises raw text separated by delimiters.

43. The system of Claim 41 wherein the structured string variable comprises strings in an extensible markup language (XML) format.

**Evidence Appendix
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No evidence of any kind, including evidence submitted under 37 CFR 1.130, 1.131 or 1.132, has been entered by the Examiner and relied upon by Appellant in the appeal.

**Related Proceedings Appendix
to Appeal Brief Under 37 CFR §41.37
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There are no related Appeals or Interferences. As such, there are no decisions rendered by a court or the Board in any such Appeals or Interferences.